

(6) The Glade and Clarendon oil producing sands of the Morrison Run Field and Elk Run Pool in Warren County.

(7) The Clarendon and Glade oil producing sands of the Clarendon Field in Warren County.

(8) The Bradford Third oil producing sand in the Shinglehouse Field, including the Kings Run, Janders Run and Ceres Pools in Potter and McKean Counties.

**§ 147.1953 Existing Class I, II (except enhanced recovery and hydrocarbon storage) and III wells authorized by rule.**

*Maximum injection pressure.* The owner or operator shall limit injection pressure to the lesser of:

(a) A value which will not exceed the operating requirements of § 144.28(f)(3)(i) or (ii) as applicable or

(b) A value for well head pressure calculated by using the following formula:

$$P_m = (0.733 - 0.433 S_g) d$$

where:

$P_m$ =injection pressure at the well head in pounds per square inch

$S_g$ =specific gravity of injection fluid (unitless)

$d$ =injection depth in feet.

**§ 147.1954 Existing Class II enhanced recovery and hydrocarbon storage wells authorized by rule.**

(a) *Maximum injection pressure.* (1) To meet the operating requirements of § 144.28(f)(3)(ii) (A) and (B) of this chapter, the owner or operator:

(i) Shall use an injection pressure no greater than the pressure established by the Regional Administrator for the field or formation in which the well is located. The Regional Administrator shall establish such a maximum pressure after notice, opportunity for comment, and opportunity for a public hearing, according to the provisions of part 124, subpart A of this chapter, and will inform owners and operators in writing of the applicable maximum pressure; or

(ii) May inject at pressures greater than those specified in paragraph (a)(1)(i) of this section for the field or formation in which he is operating provided he submits a request in writing to the Regional Administrator, and demonstrates to the satisfaction of the

Regional Administrator that such injection pressure will not violate the requirement of § 144.28(f)(3)(ii) (A) and (B). The Regional Administrator may grant such a request after notice, opportunity for comment, and opportunity for a public hearing, according to the provisions of part 124, subpart A of this chapter.

(2) Prior to such time as the Regional Administrator establishes rules for maximum injection pressure based on data provided pursuant to paragraph (a)(2)(ii) of this section the owner or operator shall:

(i) Limit injection pressure to a value which will not exceed the operating requirements of § 144.28(f)(3)(ii); and

(ii) Submit data acceptable to the Regional Administrator which defines the fracture pressure of the formation in which injection is taking place. A single test may be submitted on behalf of two or more operators conducting operations in the same formation, if the Regional Administrator approves such submission. The information shall be submitted to the Regional Administrator within one year of the effective date of this regulation.

(b) *Casing and cementing.* Where the Regional Administrator determines that the owner or operator of an existing enhanced recovery or hydrocarbon storage well may not be in compliance with the requirements of §§ 144.28(e) and 146.22, the owner or operator shall comply with paragraphs (b) (1) through (4) of this section, when required by the Regional Administrator:

(1) Protect USDWs by:

(i) Cementing surface casing by recirculating the cement to the surface from a point 50 feet below the lowermost USDW; or

(ii) Isolating all USDWs by placing cement between the outermost casing and the well bore; and

(iii) For wells as described in § 146.8(b)(3)(ii), installing a smaller diameter pipe inside the existing injection tubing and setting it on an appropriate packer; and

(2) Isolate any injection zones by placing sufficient cement to fill the calculated space between the casing and the well bore to a point 50 feet above the injection zone; and

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- (3) Use cement:
  - (i) Of sufficient quantity and quality to withstand the maximum operating pressure;
  - (ii) Which is resistant to deterioration from formation and injection fluids; and
  - (iii) In a quantity no less than 120% of the calculated volume necessary to cement off a zone.
- (4) The Regional Administrator may specify other requirements in addition to or in lieu of the requirements set forth in paragraphs (b) (1) through (3) of this section as needed to protect USDWs.

### § 147.1955 Requirements for wells authorized by permit.

- (a) The owner or operator of a Class I well authorized by permit shall install or shall ensure that the well has:
  - (1) Surface casing present;
    - (i) Extending from the surface to a depth at least 50 feet below the base of the lowermost USDW; and
    - (ii) Cemented back to the surface by recirculating the cement; and
  - (2) Long string casing and tubing;
    - (i) Extending to the injection zone; and
    - (ii) Cemented back to 50 feet above the base of the next largest casing string.
- (b) The owner or operator of a new Class II well authorized by permit shall:
  - (1) Install surface casing from the surface to at least 50 feet below the base of the lowermost USDW.
  - (2) Cement the casing by recirculating to the surface or by using no less than 120% of the calculated annular volume.
  - (3) For new enhanced recovery wells, install tubing or long string casing extending to the injection zone.
  - (4) For new salt water disposal wells, install long string casing and tubing extending to the injection zone.
  - (5) Isolate any injection zone by placing sufficient cement to fill the calculated volume to a point 50 feet above the injection zone.
- (c) The Regional Administrator may specify casing and cementing requirements other than those listed in paragraphs (a) and (b) of this section on a

case by case basis as conditions of the permit.

### Subpart OO—Rhode Island

#### § 147.2000 State-administered program—Class I, II, III, IV, and V wells.

The UIC program for all classes of wells in Rhode Island, except those on Indian lands, is the program administered by the Rhode Island Department of Environmental Management, approved by EPA pursuant to section 1422 of the SDWA. Notice of this approval was published in the FEDERAL REGISTER on August 1, 1984; the effective date of this program is August 15, 1984. This program consists of the following elements, as submitted to EPA in the State's program application.

(a) *Incorporation by reference.* The requirements set forth in the State statutes and regulations cited in this paragraph are hereby incorporated by reference and made a part of the applicable UIC program under the SDWA for the State of Rhode Island. This incorporation by reference was approved by the Director of the Federal Register effective August 15, 1984.

(1) Rhode Island Gen. Laws sections 46-12-1, 46-12-5, and 46-12-28 (Supp. 1983);

(2) "Underground Injection Control Program Rules and Regulations." State of Rhode Island and Providence Plantations Department of Environmental Management. Division of Water Resources (as received by the Secretary of State, May 21, 1984).

(b) *Other laws.* The following statutes and regulations although not incorporated by reference, also are part of the approved State-administered program:

(1) Rhode Island General Laws, Section 10-20-1 *et seq.*, entitled "State Environmental Rights";

(2) Rhode Island General Laws, Section 23-19.1-1 *et seq.*, entitled "Hazardous Waste Management";

(3) Rhode Island General Laws, Section 42-17.1 *et seq.*, entitled "Department of Environmental Management";

(4) Rhode Island General Laws, Section 42-35-1 *et seq.*, entitled "Administrative Procedures";